MATERIAL SAFETY DATA SHEET

SRM Supplier: **National Institute of Standards and Technology**
Standard Reference Materials Program
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Gaithersburg, Maryland 20899-2321

SRM Number: 3182
MSDS Number: 3182
SRM Name: Chloride Anion Standard Solution
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SECTION I. MATERIAL IDENTIFICATION

Material Name: Chloride Anion Standard Solution

Description: This material consists of 50 ml of a single component solution at a nominal concentration of 1000 mg/kg chloride dissolved in filtered (0.22 μm) 18 MΩ water. SRM 999a Potassium Chloride was used in the preparation.

Other Designations: Potassium Chloride [chloropotassuril; potassium monochloride; slow K; super K; super K (salt); ClK; potassium muriate; monopotassium chloride]

Name	Chemical Formula	CAS Registry Number
Potassium Chloride	KCl	7447-40-7

DOT Classification: Solution is not regulated by DOT.

Manufacturer/Supplier: Available from a number of suppliers; current source, Aithaca Chemical Corporation.[1]

SECTION II. HAZARDOUS INGREDIENTS

Hazardous Component	Nominal Concentration	Exposure Limits and Toxicity Data
Potassium Chloride	~1000 mg/kg	Human, Woman, Oral TD_{Lo}: 60 mg/kg/D
		Human, Man, Oral LD_{Lo}: 20 mg/kg
		Rat, Oral LD_{50}: 2600 mg/kg
		Rat, Intraperitoneal LD_{50}: 660 mg/kg
		Rat, Intravenous LD_{50}: 142 mg/kg
		Mouse, Oral LD_{50}: 1500 mg/kg
		Mouse, Intraperitoneal LD_{50}: 620 mg/kg
		Mouse, Intravenous LD_{50}: 117 mg/kg
		Guinea Pig, Oral LD_{Lo}: 2500 mg/kg
		Guinea Pig, Intraperitoneal LD_{Lo}: 900 mg/kg
		Guinea Pig, Subcutaneous LD_{Lo}: 2550 mg/kg
		Guinea Pig, Intravenous LD_{Lo}: 77 mg/kg
		Guinea Pig, Parenteral LD_{Lo}: 40 mg/kg
		Guinea Pig, Intraarterial LD_{Lo}: 130 mg/kg

[1]Identification of certain commercial materials in this MSDS does not imply recommendation or endorsement by the National Institute of Standards and Technology, nor does it imply that the materials are necessarily the best available for the purpose.

SECTION III. PHYSICAL/CHEMICAL CHARACTERISTICS

Potassium Chloride	
Appearance and Odor: white crystals or granules; no odor	**pH:** 5.4 - 8.6 (5 % solution)
Relative Molecular Weight: 74.55	**Vapor Pressure:** not applicable
Specific Gravity (Water = 1): 1.984	**Vapor Density:** not applicable
Boiling Point: 1500 °C sublimes	**Water Solubility:** 23.8 % @ 20 °C
Melting Point: 770 °C	**Solvent Solubility:** soluble in glycerol, alkali, ether; slightly soluble in alcohol; insoluble in acetone

NOTE: The physical and chemical data provided are for the pure crystalline form of potassium chloride.

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

Flash Point: Not Applicable **Method Used:** Not Applicable **Autoignition Temperature:** Not Applicable

Flammability Limits in Air (Volume %): **UPPER:** Not Applicable
LOWER: Not Applicable

Unusual Fire and Explosion Hazards: This material is a negligible fire hazard.

Extinguishing Media: Use water spray, carbon dioxide, dry chemical, or appropriate foam.

SECTION V. REACTIVITY DATA

Stability: __X__ **Stable** _____ **Unstable**

Conditions to Avoid: None reported

Incompatibility (Materials to Avoid): Potassiium chloride is incompatible with acids: may release toxic chloride gases (possible explosion with sulfuric acid and potassium permanganate); halogens (may react violently with bromine trifluoride); metals: may be corrosive when wet.

Hazardous Decomposition or Byproducts: Thermal decomposition of potassium chloride can produce chlorine.

Hazardous Polymerization: ____ **Will Occur** __X__ **Will Not Occur**

SECTION VI. HEALTH HAZARD DATA

Route of Entry: **X** **Inhalation** **X** **Skin** **X** **Ingestion**

Health Hazards (Acute and Chronic): Potassium chloride is irritating to eyes, respiratory system and skin. May be harmful if swallowed.

Inhalation: Inhalation of potassium chloride dust is an irritant to the respiratory system. There are no significant harmful effects.

Skin Contact: Skin contact of potassium chloride is an irritant, particularly with moist skin. There is no data for acute and chronic exposure to the skin.

Eye Contact: Eye contact of potassium chloride is an irritant, and a possible abrasion can occur. There is no data for acute and chronic exposure to the eyes.

Ingestion: Ingestion of potassium chloride may cause changes in blood pressure, nausea, vomiting, diarrhea, stomach pain, irregular heartbeat, drowsiness, dizziness, disorientation, internal bleeding, and paralysis. Chronic exposure of potassium chloride causes symptoms similar to acute exposure.

Listed as a Carcinogen/Potential Carcinogen:

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens		X
In the International Agency for Research on Cancer (IARC) Monographs		X
By the Occupational Safety and Health Administration (OSHA)		X

EMERGENCY AND FIRST AID PROCEDURES:

Inhalation: If potassium chloride dust is inhaled, move the victim to fresh air. If breathing becomes difficult, call a physician. Give artificial respiration if the victim is not breathing, and get immediate medical attention.

Skin Contact: Flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Obtain medical attention, if needed.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes. Obtain immediate medical assistance.

Ingestion: If a large amount is ingested, get medical attention immediately.

SECTION VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material Is Released or Spilled: Absorb spill liquid with sand or other non-combustible material. Collect spilled material in appropriate container for disposal.

Waste Disposal: Follow all federal, state, and local regulations.

Handling and Storage: Store in accordance to the Certificate of Analysis for SRM 3182. Keep material separated from incompatible substances. Handle in accordance with all current regulations and standards.

NOTE: Contact lenses pose a special problem; soft lenses may absorb irritants and all lenses concentrate them. **DO NOT** wear contact lenses in the laboratory.

SECTION VIII. SOURCE DATA/OTHER COMMENTS

Sources: OHS19310 *Potassium Chloride* MSDS. Available: MDL Information Systems, Inc., 19 March 2003.
Merck Index, 11th Ed., 1989.
Registry of Toxic Effects of Chemical Substances, RTECS DIALOG file 336; Available: MDL Information Systems, Inc. (accessed August 2003).